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Special Operations

How to directly command a JINF/TDR:

- Go to `~/TrackerUser/AMSWireCommands/` of the "tracker" user here you can find the program **TESTjmdc** this is a program that let talk to JINJ boards and to all the nodes after it that uses the **slowconf.conf** file for the HRDL settings

The syntax for this program is:

./TESTjmdc port amsw_node cmd arg1 arg2 ...

◆ **port**

- ◆ **amsw_node** is the address (in AMSWire scheme, NOT in JMDC scheme!!! You can refer to the table below...) of the node you want talk to:

Node address examples:

JINJ-itself = ffff

JINF-T0 = 033f

TDR-0-00-A (T0 TDR00) = 003f033f

TDR-4-10-B (T4 TDR21) = 153f103f

AllTDR-7 = 4000173f

- ◆ **cmd** is the command to send to the node (from Kounine document [?](#))

Examples of Command (from Kounine document [?](#)):

Read Status: C [no pars]

Read Flash: 7 [no pars]

Read last Event Number: 2 [no pars]

- ◆ **args** are the parameters you want to pass to cmd you can pass how many args (command's parameters) you need
- ◆ numbers must be written in hex

					JINJ		JMDC			
X	Y	Z	OCT	Crate	ADDR	NUM	A	B	P	S
+	WAKE	+	1	T0	0x033f	03	0xA6	0xA7	0xA8	0xA9
-	WAKE	+	2	T1	0x093f	09	0xAA	0xAB	0xAC	0xAD
-	RAM	+	4	T2	0x003f	00	0xAE	0xAF	0xB0	0xB1
+	RAM	+	3	T3	0x013f	01	0xB2	0xB3	0xB4	0xB5
+	WAKE	-	5	T4	0x103f	16	0xB6	0xB7	0xB8	0xB9
-	WAKE	-	6	T5	0x113f	17	0xBA	0xBB	0xBC	0xBD
-	RAM	-	8	T6	0x163f	22	0xBE	0xBF	0xC0	0xC1
+	RAM	-	7	T7	0x173f	23	0xC2	0xC3	0xC4	0xC5

Filename convention and history:

The dsp codes are stored in : `~/TrackerUser/AMSWireCommands/DspCodes/`

the file name has to be **file_node_name.dat**

where:

- *node* = tdr, jinft, jinj, jlv11
- *name* = *versnumber* = same name as in Philipp list i.e. *3ee3*, MUST be THE SAME as the first line in the contents of the file itself.

How to Upload a new JINF-T/TDR firmware

- Get the new dsp code in : `~/TrackerUser/AMSWireCommands/DspCodes/file_node_name.dat`
- (Official way to have the default program with the official default name)
 - ◆ copy the file as `file.dat` in : `~/TrackerUser/AMSWireCommands/`
 - ◆ edit the first line of the `file.dat` and set it as:
 - ◆ 29F2 if it will be the default file for JINF-T
 - ◆ 29F3 if it will be the default file for TDR
 - ◆ then use the script `WriteFlashFileOnAllnodesFromHere.sh`

or

- (Unofficial way to have the default program with its own name)
 - ◆ use the scripts `WriteFlashFileOnAllnodesFromDSPCodes.sh`
- **WHEN WRITING SOFTWARE ON JINF-T REMEMBER TO REPEAT THE SAME OPERATION ALSO ON THE OTHER SIDE JINF**
- **REMEMBER:** when a DSP code is written in the flash it will be effectively used only if it is loaded in memory with the right command (AMSWire command 0x46).
- There are useful scripts:

1. `DeleteFlashFileOnAllnodes.sh port# filename#`
where `node=TDR,JINF`
2. a - `WriteFlashFileOnAllnodesFromHere.sh port# filename#`
where `node=TDR,JINF`
It loads `file.dat` from the current directory, read back the flash content and checks that `filename#` is in the flash memory.
b - `WriteFlashFileOnAllnodesFromDSPCodes.sh port# filename#`
where `node=TDR,JINF`
checks for `file_node_name.dat` in the `/DspCodes` directory and copies it in `file.dat` in current directory before uploading.
3. `SetDefaultFlashFileOnAllnodes.sh port# filename# #status`
where `node=TDR,JINF`
looks for the filename in the flash and if it is found and set the default bit according to `#status`
`status=1` set it to default (from 3xxx to 2xxx, from 7xxx to 6xxx)
`status=0` downgrade from default
4. `LoadFlashFileOnAllnodes #port #filename`
runs the `#filename` on all `nodes`
5. `WriteANewnodesCodeOnAllnodesFromHereAndSetAsDefault.sh port# new_filename# old_filename#`
6. `WriteANewnodesCodeOnAllnodesFromDSPCodesAndSetAsDefault.sh port# new_filename# old_filename#`
7. Performs either 2a or 2b on the `new_filename` + 3 with `status=0` on old filename and 3 with `status=1` + 4 on new filename.

Output:

during the running of these script you can see two types of info/output:
if the AMSWire Command was sended without (with) problems -> `rxdone=0x0000` (`0x0001`)
if the operations was done -> File Erased (Not Erased) / File Loaded (Not Loaded)

How to change settings

- There are useful scripts to do this:

1. `SetHighThresholdsOnAllTDRs.sh #port #threshS1 #threshS2 #threshK`
 where port= the port of JMDC to be used [i.e. which JINJ and which side of JINF-T]
 threshS1= the S1 high threshold
 threshS2= the S2 high threshold
 thresh K=the K high threshold
2. `SetLowThresholdsOnAllTDRs.sh #port #threshS1 #threshS2 #threshK`
 where port= the port of JMDC to be used [i.e. which JINJ and which side of JINF-T]
 threshS1= the S1 low threshold
 threshS2= the S2 low threshold
 thresh K=the K low threshold
3. `DisableDynamicPedestals.sh #port`
 where port=the port of JMDC to be used [i.e. which JINJ and which side of JINF-T]
4. `EnableDynamicPedestals.sh #port`
 where port=the port of JMDC to be used [i.e. which JINJ and which side of JINF-T]
5. `EnableDynamicPedestalsWithPar.sh #port #part`
 where port=the port of JMDC to be used [i.e. which JINJ and which side of JINF-T]
 par= the parameter to use for the dynamic pedestals (how many ADC counts will be "touched" at each event)
6. `LoadDSPCode.sh #port #code`
 to load (AMSWire command 0x46) a dsp code on all the TDRs
 where port= the port of JMDC to be used [i.e. which JINJ and which side of JINF-T]
 code= the code to load
7. `./DeleteFlags.sh #port #par`
 to delete a user provided set of flags (choosable in the bit range from 0 to 15) in all TDRs
 where port= the port of JMDC to be used [i.e. which JINJ and which side of JINF-T]
 par= the parameter to use (which flags to erase)
8. `./DeletePermanentFlags.sh #port`
 to delete permanent flags (bit 9 to 15) in all TDRs
 where port= the port of JMDC to be used [i.e. which JINJ and which side of JINF-T]
9. `./DeleteAllFlags.sh #port`
 to delete all the flags (bit form 0 to 15) in all TDRs
 where port= the port of JMDC to be used [i.e. which JINJ and which side of JINF-T]

Output:

during the running of these script you can see two types of info/output:

if the AMSWire Command was sended without (with) problems -> rxdone=0x0000
 (0x0001)

if the operations was done -> File Erased (Not Erased) / File Loaded (Not Loaded)

How to Create and Load a TDR config file:

- The stuff to create a config files, create the script to load config files, and then load config files is in:
~/TrackerUser/AMSWireCommands/ConfigurationFileTDR/

In this directory you can find all the stuff (except for TESTjmdc and slowconf.conf of which there's a symbolic link) needed for create and load configuration files for TDRs:

- ConfigFile: this is the program to create binary config files for TDRs starting from a "human

readable" parameters file
(as example TDRParamFile.txt) and to create the script (LoadConfs.sh) usefull to uplaod the binary files

- LoadConfs.sh: the script that load the correct configuration file in each TDR
- TDRParamFile.txt: can be used as a template for the "human readable" parameter file for TDR

The file of parameters ("human readable file") can be filled using the TDR documentation by Philipp Azzarello
and taking into account that for "compliantness" a parameter indicated as "N" here has to written as "0 0 N"
(where the first two numbers are the Group and the SubGroup, here 0).

The script for loading the configuration file has to be called using 1 parameter
(the JMDC port to be used, i.e.
to use JINF-T-B [JMDC ports: 0,3]
to use JINF-T-A [JMDC ports: 1,2])

- The procedure has to be:
 1. Create a parameter file or edit the template (TDRParamFile.txt)
 2. ./ConfigFile TDRParamFile.txt]] <S1HighThresh> <S1LowThresh> <S2HighThresh> <S2LowThresh> <KHighThresh> <KLowThresh> <ConfFileName>
the 6 thresholds for external planes (**up to now, it means layer 1 & 8, in the future has to be probably 1 & 8 & 9**) HAS TO BE PASSED EXPLICITELY (Thresholds have to be passed in 'standard' way (1, 2, 3.5, ...))
ConfFileName is the name of the configuration files that will be produced
 3. ./LoadConfs.sh #port #oldconffilename
#oldconfname is the name of the "old" configuration file to be erased in order to write the new one

How to Create and Load a JINF config file:

- The stuff to create a config files, create the script to load config files, and then load config files is in:
~/TrackerUser/AMSWireCommands/ConfigurationFile/JINF/

In this directory you can find all the stuff (except for TESTjmdc of which there's a simbolic link) needed for create and load configuration files for JINF-Ts:

- ConfigFile: this is the program to create binary config files for JINF-Ts starting from a "human readable" parameters file
(as example JINFParamFile.txt, with X is the crate number in [0-8])
and to create the script (LoadConfs_X.sh, with X is the crate number in [0-8]) usefull to uplaod the binary files
- LoadConfs_X.sh: the script that load the correct configuration file in JINF-T number X
- CreateAndLoadConfs.sh: the script that create and load the correct configuration file in each JINF-T
- JINFParamFile.txt: can be used as a template for the "human readable" parameter file for JINF-T X

8 different configuration files are created for the 8 crates/JINFs (for now all equals except for crate/JINF 4 [PowerGroup3 with Bias 60V]).

The file of parameters ("human readable file") can be filled using the JINF documentation by

Kounine or the JINF-T one by Philipp Azzarello.

- The procedure has to be

- to change and load the configuration file BBBB, erasing the old configuration file AAAA, only for the JINF-T X using JINJ NN and JINJ MM to talk with JINF-T A and JINF-T B:

1. Create a parameter file or edit the template (JINFParamFile.txt)
2. ./ConfigFile JINFParamFile.txt X NN MM AAAA BBBB
3. ./LoadConfs_X.sh

- to change and load the configuration file BBBB, erasing the old configuration file AAAA, on all JINF-Ts using JINJ NN and JINJ MM to talk with JINF-T's A and JINF-T's B:

1. Edit the template parameter files JINFParamFile_X.txt's (they will be automatically called by the script below)
2. ./CreateAndLoadConfs.sh NN MM AAAA BBBB

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